UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/435,373	11/05/1999	SHIGEKI OUCHI	RCOH-1020	5161

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EXAMINER
LE, BRIAN Q

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 01/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.		Applicant(s)
Office Action Summary	09/435,373		OUCHI, SHIGEKI
	Examiner		Art Unit
	Brian Q Le		2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 October 2002</u> .

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-36</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-36</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>05 November 1999</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

Response to Amendment and Arguments

1.   Applicant's amendment filed October 23, 2002, has been entered and made of record.

2.   Applicant's arguments with regard to claims 1-36 have been fully considered, but are not considered persuasive because of the following reasons:

For claims 1 and 19, the Applicant argues (on page 6) that Abe reference fails to anticipate the condition of a "single value based upon multiple criteria". However, Abe discloses multiple criteria include font type, font size, character circumscribing minimal rectangular and character code to be bounded within an single value called "information" (column 3, lines 32-52).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

For claims 2-12, 15-18, 20-30, and 33-36, the Applicant argues (on page 7) that both Abe and Katsuyama references do not teach the natural language concept. The Examiner respectfully disagrees. Abe teaches the natural language concept (column 4, lines 22-25) as being defined in the specification (page 6, lines 25-28).

The Applicant also argues that Chen reference does not teach techniques that applied to title extraction. However, Chen clearly teaches techniques that not only applied to text extraction but also title extraction (FIGs. 20A-21B).

Also, the Applicant argues that Chen teaches away from the present invention,

because is to recognize keywords without recognizing the individual characters or words.

However, Chen not only recognizing keywords but also recognize individual words

(column 2, lines 42-48).

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the
United States before the invention thereof by the applicant for patent, or on an international application
by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
title before the invention thereof by the applicant for patent.

4.   The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) do not apply to the examination of this application as the application

being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35

U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5.   Claims 1 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Abe

et al. U.S. Patent No. 6,289,121.

Referring to claim 1, Abe teaches a method of determining a title from a

document image (FIG 2 and FIG 4), comprising:

Dividing the document image into minimal circumscribing rectangles which

contain a character image (column 3, line 32-33, line 39-42);

Recognizing characters in said minimal circumscribing rectangles (column 3, line

42-45); and

Optical character recognition converts the text image into the character data

(column 3, line 33-35).

Determining a title of the document image based upon a likelihood of each of said

minimal circumscribing rectangles containing a title (column 3, line 39-42), said

likelihood being determined by a single value based upon multiple criteria obtained

during said character recognition (column 3, line 35) and said title determination, said

multiple criteria comprising natural language likelihood (column 4, lines 20-25 and

column 6, 43-50) and any combination of character row area coordinates (column 3, lines

43), character type (font type) (column 3, lines 45-48), number of characters, character

code assurance (column 3, lines 45-56), character minimum circumscribing rectangle

coordinates, and character minimum circumscribing rectangle size (column 3, lines 39-

42).

For claim 19, please refer back to claim 1.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 2-12, 15-18, 20-30, and 33-36 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Abe et al. U.S. Patent No. 6,289,121 as applied to claim 1 above,

and further in view of Katsuyama et al. U.S. Patent No. 6,035,061.

Referring to claim 2, Abe teaches that an image document can be break down to

points (articles) (FIG 8, S404). However, Abe didn't disclose a single value includes in a

sum of points based on said multiple criteria. Nevertheless, Katsuyama teaches the

concept of expressing (display/histogram) the sum of black pixels (likelihood) (column

11, line 4-43) in the determination of areas on the documents. Therefore, it would have

been obvious for a method of determining a title from a document image wherein said

single value expressed in a sum of points based said multiple criteria to further the

analysis and the detection of a title because both references are directed to determining

areas on a document and locating titles. Further, Katsuyama provides an alternative to

the process of Abe in the location of areas of a document.

For claim 3, Abe teaches the method of determining a title from a document

image wherein said multiple criteria include characteristic on font (FIG 9, S507).

Referring to claim 4, Abe discloses font characteristics include a frequency of a

particular font type (column 6, line 10, line 58-59).

For claim 5, Abe also discloses character recognition further includes an act of

matching said characters with a set of predetermined words, said predetermined words

indicating said title (column 4, line 23-31).

And claim 6, Abe describes a result of said matching with said multiple criteria

include predetermined words (column 5, line 25-27).

Claim 7, Abe shows multiple criteria include a number of said characters (character code) (column 3, line 50-52).

Referring to claim 8, Abe teaches the method of determining a title from a document image using a concept about threshold (column 4, line 49). However, Abe didn't specifically disclose the concept of comparing characters to a predetermined maximal threshold number. However, Katsuyama teaches the concept of comparing characters to a predetermined threshold number (column 35, line 2-5). Therefore, it would have been obvious to determine a title from a document image wherein said number of said characters is compared to a predetermined maximal threshold number in order to gather more information of about title properties.

Referring to claim 9, Abe failed to mention multiple criteria include an assurance level for character recognition. However, Katsuyama teaches an assurance level of said character recognition (column 7, line 11-17). Therefore, it would have been obvious for a method of determining a title from a document image wherein said multiple criteria includes an assurance level of said character recognition to improve the data integrity during character recognition process.

And to claim 10, Katsuyama further teaches an assurance level is compared to a predetermined maximal threshold ("at most") value (column 7, line 11-17). Therefore, it would have been obvious to choose a predetermine threshold value to be minimum as to be a design choice.

For claim 11, Abe teaches the method of determining a title from a document wherein said multiple criteria include layout characteristics (column 4, line 50-51 and column 6, line 38-39).

And to claim 12, Abe teaches the method of determining a title from a document image wherein said layout characteristics include size (column 3, line 47-48). However, Abe failed to teach that multiple criteria include centering and underlining. However, Katsuyama teaches multiple criteria that include centering and underlining (column 6, line 0-5 and column 22, line 37-40). Therefore, it would have been obvious for a method to determine a title wherein multiple criteria include centering and underlining to specifically highlight the selected text.

Referring to claim 15, Abe failed to disclose the method of determining a title from a document image wherein said multiple criteria includes a ratio between a length and a height of each of said circumscribing rectangles. However, Katsuyama teaches the concept wherein multiple criteria includes a ratio between a length and height of each of said circumscribing rectangles (column 22, line 0-9). Therefore, it would have been obvious for a method to determine a title wherein multiple criteria includes ratio between length and height of each circumscribing rectangles to further study the size information of surrounding rectangles.

For claim 16, Able also failed to teach the method of determining a title from a document image according wherein said multiple criteria includes a ratio between a summed width of said characters and a corresponding one of said circumscribing rectangles. However, Katsuyama also teaches multiple criteria wherein includes a ratio

between a summed width (column 10, line 67 and column 11, line 0-6) of said characters

and a corresponding one of said circumscribing rectangles (column 23, line 0-10 and

column 32, line 27-29). Therefore, it would have been obvious for a method determines

a title from a document image wherein said multiple criteria include a ratio between a

summed width of said characters and a corresponding one of said circumscribing

rectangles to further study the width information between circumscribed rectangles.

For claim 17, Abe further failed to disclose the method wherein likelihood is

adjusted according to a type of said image documents. However, Katsuyama also teaches

that likelihood can be adjusted according to a type of said image documents (column 8,

line 10-22). Therefore, it would have been obvious for a method determine title from an

image document wherein likelihood can be adjusted according to a type of said image

document because the method can reused the existing template of title extraction to

extract the current title faster.

Also for claim 18, Abe failed to teach the method of determining a title from a

document image wherein said title is combine with a keyword. However, Katsuyama

teaches a method wherein said title can be combined with a keyword (column 2, line 55-

59).

For claims 20-30, please refer back to explanation of claims 2-12 sequentially.

Also for claims 33-36, please refer back to claims 15-18 sequentially.

8.   Claims 13, 14, 31 and 32 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Abe et al. U.S. Patent No. 6,289,121 and Katsuyama et al. U.S. Patent

No. 6,035,061 as applied to claim 2 above, and further in view of Chen et al. U.S. Patent

No. 5,745,600.

Referring to claim 13, the combination of Abe and Katsuyama failed to disclose a

method of determining a title from a document image wherein said multiple criteria

indicates whether or not said characters end in a noun form. However, Chen teaches a

method that identifies word wherein characters end in a various forms (column 15, line

10-55). Therefore, it would have been obvious for to determine whether characters are

noun or other forms of the word to generate multiple criteria about the title of document

images because each reference uses bounding boxes to located words and makes

determinations about those words and determining the for of word allows easier

verification of the areas of a document.

And to claim 14, Abe also failed to disclose the method of determining a title

from a document image wherein said multiple criteria indicates whether or not said

characters end in a set of predetermined suffixes. Again, Chen further teaches a method

that identifies world wherein multiple criteria indicates whether or not said characters end

in a set of predetermined suffixes or prefixes (column 15, line 45-55).

For claims 31 and 32, please refer back to claims 13 and 14 sequentially.

Conclusion

9.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than

SIX MONTHS from the mailing date of this final action.

Contact Information

10.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian Q Le whose telephone number is 703-305-5083.

The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-308-5397 for

regular communications and 703-308-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

3900.

BL
January 9, 2003

Jon Chang
Primary Examiner